

**FINAL MEETING SUMMARY**  
**Discussion of Per- and Polyfluoroalkyl Substances (PFAS) Detections in**  
**Groundwater in the Vicinity of Former Marine Corps Air Station El Toro**

**Meeting Location:** Irvine Ranch Water District (IRWD) Operations Center

**Meeting Date/Time:** 7 August 2018/1300–1400

**Meeting Attendees:**

Guy Chammas (U.S. Department of the Navy [Navy])  
Alex Bollweg (Navy [via phone])  
Arseny Kalinsky (IRWD)  
Kevin Burton (IRWD)  
Malcolm Cortez (IRWD)  
Lars Oldewage (IRWD)

Carl Spangenberg (IRWD)  
Allen Shinbashi (IRWD [via phone])  
Roy Herndon (Orange County Water District [OCWD])  
Patrick Versluis (OCWD)  
Jason Dadakis (OCWD)

**Previous Meeting Action Items**

Mr. Chammas (Navy Lead Remedial Project Manager) welcomed everyone to the meeting, indicating it was a follow-up to the meeting on 29 March 2018. The participants then provided self-introductions. Mr. Chammas then addressed the action items from the previous meeting, which included:

- OCWD to submit results from previous sampling of production well (b) (9) to the Navy [completed]
- OCWD to sample Principal Aquifer (PA) extraction wells ET-2 and IRWD-78 for PFAS analysis [completed]
- Navy, IRWD, and OCWD to discuss Settlement Agreement stipulations with respective counsels [ongoing]
- Navy to consider sampling monitoring well 18BGMW19 for PFAS analysis [pending for September]

Given the existing distribution of PFAS detections, the generally westward groundwater flow direction in both the SGU and PA, and the particle tracking results obtained from the most recent groundwater flow model, Mr. Chammas indicated that the Navy was also planning on sampling monitoring well 18BGMP06 for PFAS analysis in September. He offered to OCWD to conduct split sampling if desired.

**Current Meeting Agenda Items**

Mr. Chammas reviewed the agenda items for the current meeting, highlighting the following:

- the Navy notified IRWD and OCWD of its initial basewide PFAS sampling results in October 2017;
- the existing air stripping/vapor-phase granular activated carbon (GAC) treatment train for both the Shallow Groundwater Unit (SGU) and PA Treatment Plants was ineffective at removing PFAS;
- recent results from in-place, full-scale, liquid-phase GAC treatment trains originally designed for volatile organic compounds at Former Marine Corps Air Station (MCAS) Tustin demonstrate that they were effectively removing up to 12,000 parts per trillion of combined PFOA/PFOS from the influent;
- the Navy could not dictate any SGU or PA Treatment Plant upgrades to liquid-phase GAC or other applicable technologies but believed it would be in the best interests of all stakeholders considering PFAS regulations were imminent;
- the Navy is concerned about liability and environmental risks associated with PFAS originating from Former MCAS El Toro; and
- SGU and/or PA Treatment Plant upgrades would likely be the financial responsibility of IRWD/OCWD in accordance with the Settlement Agreement.

**Discussion**

Mr. Chammas indicated that the Navy had conducted preliminary discussions with its internal counsel regarding the Settlement Agreement stipulations and generally concluded that IRWD/OCWD would be responsible for any treatment plant upgrades and need to bear the associated financial burden. He then asked if IRWD and OCWD had an opportunity to review and discuss the Settlement Agreement stipulations with their respective counsels. Mr. Herndon (OCWD) responded, indicating he had consulted with OCWD counsel and believed there may be a

**FINAL MEETING SUMMARY**  
**Discussion of Per- and Polyfluoroalkyl Substances (PFAS) Detections in**  
**Groundwater in the Vicinity of Former Marine Corps Air Station El Toro**

provision in the SGU contract that would enable some cost recovery from the Navy. In terms of the PA Treatment System, Mr. Herndon stated that there was a contingency fund established in the Settlement Agreement that could potentially be accessed to help defray upgrade costs. In addition, he mentioned that IRWD and OCWD hold a pollution insurance policy that could potentially be triggered.

Mr. Chammas indicated that he believed that Settlement Agreement contingency funds for the current 10-year period in effect had already been exhausted and that it may be necessary to await the next 10-year period. Mr. Herndon and others also agreed that the fund was fairly limited (\$1M range). Mr. Spangenberg (IRWD) confirmed that most of the current 10-year period's contingency budget had been exhausted as part of PA Treatment System extraction well maintenance and refurbishment.

The general terms of the pollution insurance policy were discussed. Mr. Shinbashi (IRWD) indicated that it may be best to inform the carrier sooner than later, especially if any claim/funding would need to be preapproved. The participants also discussed the expected need for a regulatory driver to trigger a claim and the possibility that the carrier may want to respond now to prevent a potential larger claim in the future. IRWD/OCWD agreed to Mr. Chammas' request to provide the Navy with a copy of the policy. It was also agreed that the Navy and IRWD/OCWD would develop and share separate/independent legal assessments of the situation for discussion at the next meeting.

Mr. Burton (IRWD) asked Mr. Chammas if he thought that there was an immediate need to modify the SGU Treatment Plant to remove PFAS from the effluent. Mr. Chammas responded in the negative, citing no enforceable regulatory standards existed for the effluent. However, Mr. Chammas reiterated that regulatory standards were imminent (in fact, PFAS may be listed as a CERCLA hazardous substance as soon as October) and IRWD/OCWD may want to start planning for potential upgrades, even though the Navy could not dictate how IRWD/OCWD proceeds. He also indicated that the Navy wanted to continue its collaborative relationship with IRWD/OCWD to address the PFAS problem.

Mr. Burton indicated that extraction wells ET-2 and IRWD-78 were not currently piped to the PA Treatment Plant and connecting them to the system would entail a major undertaking. IRWD and OCWD are currently completing sampling across their distribution systems, including reservoirs, recycled water, and other water streams, for PFAS analysis to add to the existing database. Mr. Burton also raised the concern that if IRWD/OCWD begin planning and constructing a PFAS treatment system now, it may provide less incentive for the Navy to contribute financially in the future.

Mr. Chammas indicated that he was currently keeping the regulatory agencies generally aware of the Navy's discussions with IRWD and OCWD regarding PFAS and the Settlement Agreement, but that he did not believe their active participation was warranted yet. The other meeting participants agreed.

Mr. Versluis (OCWD) indicated that OCWD was already coordinating its regular IRP Site 18/24 split sampling with Navy contractor NOREAS, Inc. Mr. Chammas reiterated the Navy's plans to sample monitoring wells 18BGMW09 and 18BGMP06 for PFAS in September and reextended the offer for OCWD to collect split samples.

The meeting participants agreed to schedule the next meeting for early November, to be coordinated by Mr. Chammas. Mr. Bollweg (Navy) mentioned that the recent PFAS results for Former MCAS Tustin could be made available to IRWD and OCWD. Mr. Spangenberg indicated IRWD had future plans to install a drinking water supply well near Former MCAS Tustin near the intersection of Red Hill and Warner Avenues. Mr. Chammas expressed his concern that installing a deep production well in the area might enhance the vertical hydraulic gradient, potentially pulling Navy plumes into the regional aquifer. Mr. Burton responded that IRWD had not even started the California Environmental Quality Act process to install the well. He also stated that Mr. Kalinsky (IRWD) was retiring in October and that the Navy's new contact would be Mr. Spangenberg.

**FINAL MEETING SUMMARY**  
**Discussion of Per- and Polyfluoroalkyl Substances (PFAS) Detections in**  
**Groundwater in the Vicinity of Former Marine Corps Air Station El Toro**

**Action Items**

- IRWD to submit a copy of the pollution liability policy to the Navy.
- IRWD/OCWD and the Navy to complete and share separate/independent legal assessments.
- Navy to complete sampling of monitoring wells 18BGMW09 and 18BGMP06 for PFAS in September.
- OCWD to coordinate any split sampling with the Navy and its contractor.
- Navy to schedule next meeting for early November.